Acta Zootaxonomica Sinica, 38 (1): 33 - 37 (Jan. 2013) ISSN 1000-0739

A NEW SPECIES OF THE GENUS *SERINA* FROM SOUTH GANSU, CHINA (STYLOMMATOPHORA, ENOIDEA)

FANG Yao-Xin, WU Min*
School of Life Science, Nanjing University, Nanjing 210093, *China*

Abstract A new enid species *Serina schilekyoi* sp. nov. is described from South Gansu. The new species, closely related to *Serina egressa* (Sturany, 1900), is characterized by the markedly swollen penultimate whorl, the absence of narrow defined zone on every beneath whorl, longer and more slender penis in which 1 V-shaped pilasters is present, and the absence of atrial retractor muscle.

Key words Taxonomy, Enidae, shell morphology, genitalia, habitat, West China.

Serina Gredler, 1898 (Gredler, 1898a: 10; Gredler, 1898b: 106; Wiegmann, 1891: 270; Schileyko, 1998: 190), an enid genus endemic to West China, is diagnosable by the nearly adnate aperture and the presence of the columellar teeth which are variable in both number and shape. Before this paper, eight species and two subspecies (Ancey, 1884; Annandale, 1923; Chen *et al.*, 2003; Gredler, 1898 a & b; Haas, 1933; Hilber, 1883; Kobelt, 1899 - 1902; Möllendorff, 1901; Sturany, 1900; Yen, 1938, 1939, 1942) are grouped in *Serina*. Now we describe a new *Serina* species from the known range of the genus.

The living specimens relaxed by being drowned in water were transferred to 70 % ethanol before being replaced with ethanol of the same concentration after about 3 d. Shell and genitalia were measured with a calibrated digital vernier calliper and on photo respectively, both to the nearest 0.1 mm. Means were underlined in the text. Whorl numbers were counted as described by Kerney & Cameron (1979) and taken with 1/8 (0.125) whorl accuracy. Measurements of soft parts were taken from the specimens preserved in 70 % ethanol. Directions used in descriptions: proximal = towards the genital atrium; distal = away from the genital atrium.

Serina Gredler, 1898

Type species: *Buliminus ser* Gredler, 1898, subsequent designation by Möellendorff, 1901.

Serina schileykoi sp. nov. (Figs 1 - 7)

Diagnosis. The most swollen part occurred at penultimate whorl. Narrow defined zone on beneath whorl absent. Columella with 1 blunt tooth expanding inward. Penis long; slender; interiorly with 1 V-shaped pilasters. Atrial retractor muscle absent. Shell height 12.3 - 13.7 mm, diameter major 4.1 - 4.7 mm, whorls 8.750 - 9.875, height/diameter major ratio 2.67 - 3.11; height of aperture 3.5 - 4.5 mm, width of aperture 3.1 - 3.7 mm.

Holotype HBUMM06669-specimen 1, fully matured shell with soft parts (fma). Paratypes, HBUMM06669-specimen 2 - 15, 14 fma; 9 Aug. 2011; collection: WU Min, XU Qin and Prem B. Buhda. The types are deposited in the Museum of Hebei University, Baoding, China.

Type locality. China, Gansu, Wenxian County (33°05′N, 104°21′E; alt. 1 269 m).

Etymology. The new species is named after Russian malacologist Prof. Dr. Anatoly A. Schileyko (Institue of Problems of Evolution, Russian Ac. Sci.); noun.

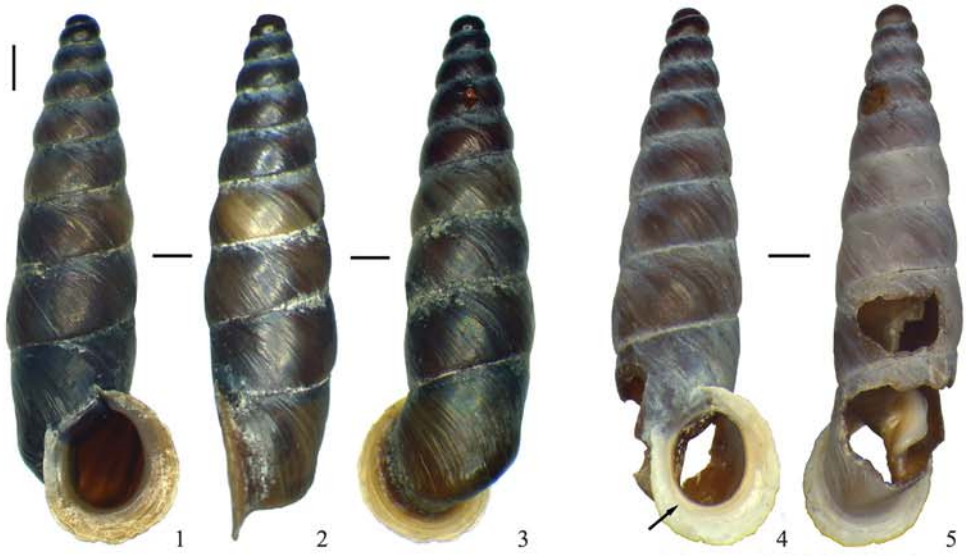
Description

Shell dextral, elongate conic, thin-walled but solid, opaque, glossy, consisting of 8.750 - 9.292 - 9.875 not shouldered, somewhat convex whorls. Last whorl gradually ascending toward aperture, straight at periphery, with a rugate region bearing crowded and/or thickened growthline-like folds at abapertural side near aperture. The most swollen part occurred at penultimate whorl. Apex not acuminate. Growthlines usually not very clear. Color uniformly brown, aperture whitish-brown or white. Embryonic shell (1.250 - 1.442 - 1.625) smooth, polished. Postnuclear whorls without regular radial sculpture, on concave region of body whorl there are spiral grooves. Suture normal, without narrow defined zone on beneath whorls. Aperture straight, circular, almost vertical, with connected insertions. Secondary aperture

* Corresponding author, E-mail: minwu1969@yahoo.cn

This research was supported by the National Natural Science Foundation of China (31071882, J1103512) and a Project from the Ministry of Science and Technology of the People's Republic of China (2006FY120100).

Received 16 May 2012, accepted 1 Nov. 2012.



Figs 1 – 5. *Serina schileykoi* sp. nov. 1 – 3. HBUMM06669-specimen 1, holotype. 1, 4. Apertural view. 2. Lateral view. 3. Ab-apertural view. 4 – 5. HBUMM06669-specimen 2, paratype. 5. Columellar tooth, inside view of aperture. Arrow indicates the secondary aperture. Scale bars = 1 mm.

present. Palatal margin rounded, toothless. Peristome sharp, reflexed, with distinct cuff. Cuff straight, not curved backward. Parietal callus distinct, with angular tubercle. Depression occurred in last whorl approximate 1 whorl. Palatal wall without deep depression or tooth of irregular shape. Columellar vertical or arched, not truncate. Outer edge of columellar lip vertical. Umbilicus, a narrow slit. Dimensions: shell height 12.3 – 12.8 – 13.7 mm; diameter major 4.1 – 4.4 – 4.7 mm; height/diameter major ratio 2.67 – 2.90 – 3.11. Aperture: height 3.5 – 4.0 – 4.5 mm; width 3.1 – 3.3 – 3.7 mm. Shell height/aperture height ratio 2.93 – 3.19 – 3.59. Holotype: number of embryonic whorls 1.375, whorl number 9.250, shell height 12.3 mm, diameter major 4.1 mm, aperture height 3.8 mm, aperture width 3.5 mm.

Genitalia. Vas deferens long, evenly thick, laterally entering epiphallus at some angle and with distinct boundary with epiphallus. Epiphallus moderately long, cylindrical, uniformly thickened, externally smooth, forming a few loops. Epiphallic caecum absent. Flagellum short, knob-like, proximally normal, with tip blunt. Penis clavate, thin-walled, distally enlarged, internally with 2 longitudinal pilasters which not fused at epiphallic pore; pilasters forming 1 V-shaped structure with proximal free end approaching at penial retractor insertion. Penial verge absent. Penial appendix moderately long, branched off from penis at some distance from atrium; consisting of sections A-1 – A-5; A-1 short, interiorly with evenly arranged transversal folds fused with A-2; A-3 distinct; A-4 passes into short, straight A-5. Penial retractor biramous, its branches attached to diaphragm separately; penial branch attaching to middle part of penis, appendical branch attaching to A-2. Additional retractor absent. Muscular band connecting vagina and epiphallus absent. Atrium short, lacking its own retractor. Free oviduct moderately long, longer than vagina. Vagina short, not swollen, straight, unpigmented, not lined with loose, spongy tissue. Duct of bursa copulatrix moderately long, proximally straight. Reservoir of bursa copulatrix of normal size, well defined, with a rather short stalk. Diverticle longer than reservoir, somewhat expanded distally. Bursa copulatrix and diverticle distinguishable, forked more distally from their base. Measurement of genitalia: epiphallus 10.8 mm; flagellum 0.1 mm; vas deferens 7.7 mm; vagina 1.7 mm; free oviduct 2.3 mm; duct of bursa copulatrix 6.2 mm; bursa copulatrix 0.9 mm; diverticle 3.8 mm; A-1 + A-2 1.4 mm; A-3 0.4 mm; A-4 + A-5 6.7 mm.

Distribution. South Gansu, known only from the type locality.

Taxonomic remarks. The new species is similar to *Serina egressa* (Sturany, 1900), which is raised to be a species rather than a subspecies of *Serina ser* Gredler, 1898 (Wu, unpublished), by the size, general shape, columellar armature, and some genitalian features such as short flagellum and absence of epiphallic caecum. However, the new species differs from *S. ser* conchologically: 1) the absence of narrow defined zone on beneath whorl; 2) most swollen part occurred at penultimate whorl; and anatomically; 3) relatively long and slender penis; 4) the occurrence of 1 V-shaped pilasters; 5) the lack of atrial retractor.

Ecological remarks. *Serina schileykoi* sp. nov., as other *Serina* members, usually lives on the clean nude

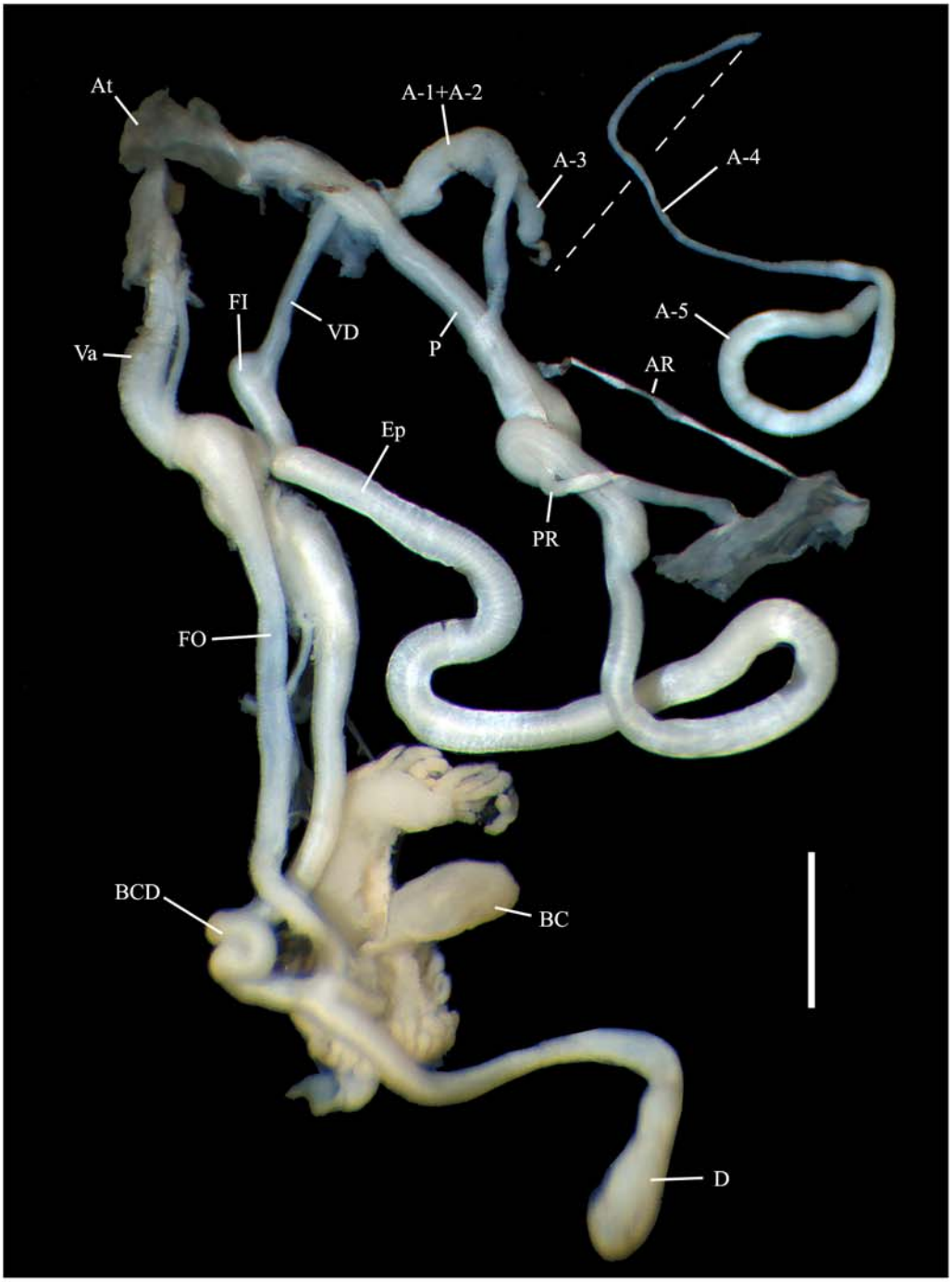


Fig. 6. *Serina schileykoi* sp. nov. HBUMM06669-specimen 1, holotype, general view of genitalia. At. Atrium. AR. Retractor muscle of the appendicular branch. BC. Bursa copulatrix. BCD. Bursa copulatrix duct. D. Diverticle. Ep. Epiphallus. Fl. Flagellum. FO. Free oviduct. P. Penis. PR. Retractor muscle of the penial branch. Va. Vagina. VD. Vas deferens. Scale bar = 1 mm.

rocks partially lichened and mossed (Fig. 7). Like all the congeneric members, the adult and juvenile animals of the new species are not covered by the earth crust which is usually observed in *Holcauchen* and *Pupinidius* species.

Fig. 7. *Serina schileykoi* sp. nov., habitat.

Acknowledgements Thanks go to Prof. Dr. A. A. Schileyko (Institute of Problems of Evolution, Russian Ac. Sci.), who provided helpful comments on an earlier version of this manuscript.

REFERENCES

Ancey, M. C. F. 1884. Contribution a la Faune Malacologique Indo-Thibetaine. *Annales de Malacologie*, 1: 381 – 397.

Annandale, T. N. 1923. Zoological results of the Percy Sladen Trust expedition to Yunnan under the leadership of Professor J. W. Gregory, F. R. S. (1922). Land molluscs. *Journal of the Asiatic Society of Bengal*, 19: 385 – 422.

Chen, D-N, Zhou, W-C, Luo, T-C and Zhang, W-H 2003. On the genus *Serina* Gredler from China with description of a new species (Gastropoda, Pulmonata, Stylommatophora, Enidae). *Acta Zootaxonomica Sinica*, 28 (3): 442 – 445. [动物分类学报]

Gredler, V. 1898a. Zur Conchylien-Fauna von China. XIX. Stück. Neue Buliminiden aus Kansu. *Programm des Öffentlichen Privat-Obergymnasiums der Franciscaner zu Bozen*, 1897 – 1898: 39 – 51, 1 pl.

Gredler, V. 1898b. Neue Buliminiden aus Gansu. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, 30: 104 – 107.

Haas, F. 1933. Binnenmollusken aus Süd-und Südwestchina. *Senckenbergiana*, 15 (5/6): 310 – 322.

Hilber, V. 1883. Recente und im Löss gefundene Landschnecken aus China. Ⅱ. *Akademie der Wissenschaften in Wien*, 88: 1 349 – 1 392, 3 pls.

Kerney, M. P. and Cameron, R. A. D. 1979. A Field Guide to the Land Snails of Britain and North-west Europe. Collins, London. 288 pp., 24 pls.

Kobelt, W. 1899 – 1902. Die Familie Buliminidae. Systematisches Conchylien-Cabinet von Martini und Chemnitz, ed. 2. Band 1, Abtheilung 13, Theil 2: 397 – 1 051, pls. 71 – 133. Bauer & Raspe, Nürnberg. [Lieferung 443, pp. 453 – 508, pls. 77 – 82 (1899); L. 444, pp. 509 – 556, pls. 83 – 88 (1899); L. 463, pp. 725 – 772, pls. 108 – 112 (1901); L. 470, pp. 837 – 884, pls. 124 – 128 (1902). After F. W. Welter Schultes (1999), Archives of Natural History, 26, 157 – 203.]

Möllendorff, O. F. von 1901. Binnen-Mollusken aus Westchina und Centralasien. Ⅱ. *Annuaire du Musée Zoologique de L'Académie Impériale des Sciences de St. -Petersbourg*, 6: 299 – 412, Tables 1 – 11, pls. XII – XVII.

Schileyko, A. A. 1998. Treatise on recent terrestrial pulmonate molluscs. Part. 2. Gastrocoptidae, Hypselostomatidae, Vertiginidae, Truncatellinidae, Pachnodidae, Enidae, Sagdidae. *Ruthenica*, 2 (Suppl.): 129 – 261.

Sturany, R. 1900. Obrutschew's Mollusken-Ausbbeute aus Hochasien. *Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien, Mathematisch-Naturwissenschaftliche Classe*, 70: 17 – 48, pl. Ⅰ – Ⅳ.

Wiegmann, F. 1901. Binnen-Mollusken aus Westchina und Centralasien. Zootomische Untersuchungen. Ⅱ. Die Buliminiden. *Annuaire du Musee Zoologique de L'Academie Imperiale des St. -Petersburg*, 2: 220 – 297.

Yen, T-C 1938. Notes on the gastropod fauna of Szechwan Province. *Sonderabdruck aus: Mitteilungen aus dem Zoolog. Museum in Berlin*, 23: 438 – 457, 1 Taf.

Yen, T-C 1939. Die chinesischen Land-und Süβwasser-Gastropoden des Natur-Museums Senckenberg. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 444: 1 – 234, pls. 1 – 16.

Yen, T-C 1942. A review of Chinese gastropods in the British Museum. *Proceedings of the Malacological Society of London*, 24: 170 – 289, pls. 11 – 28.

中国甘肃南部金丝雀螺属一新种（柄眼目，艾纳螺总科）描述

房耀欣 吴 岷*
南京大学生命科学学院 南京 210093

摘 要 描述了栖息于甘肃南部的陆生贝类艾纳螺科 1 新种，希氏金丝雀螺 *Serina schileykoi* sp. nov.。与各已知种相比，新种的的次体螺层最膨大；毗邻缝合线处不具窄带区；轴唇具 1 向内延伸的钝齿。在生殖系统中，生殖开口牵引肌阙如；交接器细长，内具 1 个 V-形壁柱。本种在形态上与戒金丝雀螺 *Serina egressa*（Sturany，1900）最为接近。

希氏金丝雀螺，新种 *Serina schileykoi* sp. nov.（图 1 ~ 7）

鉴别特征 次体螺层最膨大；毗邻缝合线处不具 1 窄带区；轴唇齿 1 枚，强壮。生殖开口牵引肌阙如；交接器细长，内具 1 个 V-形壁柱。壳高 12.3 ~ 13.7 mm，壳径 4.1 ~ 4.7 mm，螺层数 8.750 ~ 9.875，壳高/壳径比 2.67 ~ 3.11，壳口高 3.5 ~ 4.5 mm，壳口宽 3.1 ~ 3.7 mm。

正模 HBUMM06669-specimen 1，具软体部成体；甘肃文县（33°05′N，104°21′E；海拔 1 269 m），2011-08-09，吴岷、徐沁、Prem B. Buhda 采。副模 HBUMM06669- specimen 2 ~ 15，14 头具软体部成体；采集数据同正模。标本保存于河北大学博物馆。

词源：新种种名源自俄罗斯贝类学家 Prof. Dr. Anatoly A. Schileyko 的姓氏；名词。

致谢 蒙 Prof. Dr. Anatoly A. Schileyko（Institute of Problems of Evolution，Russian Ac. Sci.）对本文提出具体意见，谨致谢忱。

关键词 分类学，艾纳螺科，贝壳形态，生殖系统，栖息地，中国西部.
中图分类号 Q959.212

* 通讯作者，E-mail：minwu1969@yahoo.cn